

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

**(19) World Intellectual Property Organization  
International Bureau**



**(43) International Publication Date  
25 March 2004 (25.03.2004)**

PCT

(10) International Publication Number  
**WO 2004/024290 A1**

**(51) International Patent Classification<sup>7</sup>:** B01D 25/21,  
35/18

Croswell Street, West Olive, MI 49460 (US). BOSCH, Matthew, J. [US/US]; 1658 DenHertog Street SW, Wyoming, MI 49509 (US). MARCHEK, Kenneth, A. [US/US]; 2542 Thomas Avenue, Holland, MI 49424 (US).

**(21) International Application Number:** PCT/US2003/029161

(74) Agents: CHURNEY, Liane, L. et al.; FLYNN, THIEL, BOUTELL & TANIS, P.C., 2026 Rambling Road, Kalamazoo, MI 49008-1631 (US).

**(22) International Filing Date:** 12 September 2003 (12.09.2003)

**(25) Filing Language:** English

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

**(26) Publication Language:** English

CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG).

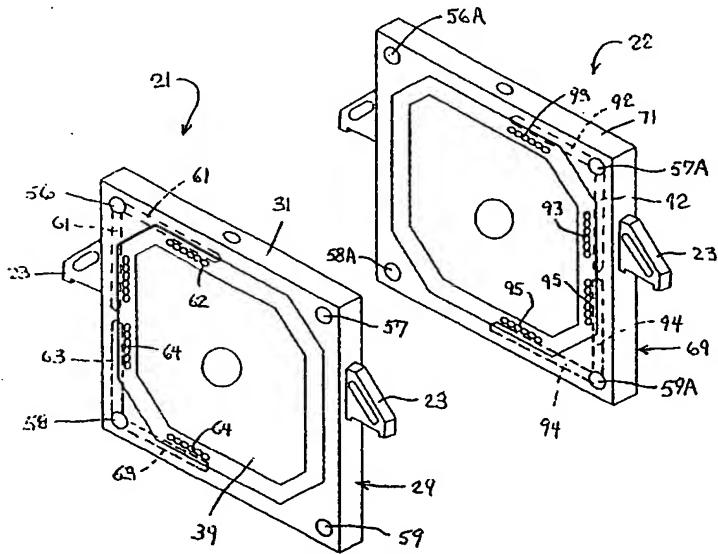
(71) **Applicant (for all designated States except US): UNITED STATES FILTER CORPORATION [US/US]; Legal Department, 40-004 Cook Street, Palm Desert, CA 92211 (US).**

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and  
(75) Inventors/Applicants (*for US only*): HILDEBRANT, Mark, W. [US/US]; 6393 Hidden Ponds Drive, Holland, MI 49423 (US). MORLEY, Terry, A. [US/US]; 15677

*[Continued on next page]*

(54) Title: HEATING PLATE FOR VACUUM FILTER PRESS



**(57) Abstract:** A filter press (11) defined by a closable stack of filter plates defined by a first plurality of membrane filter plates (21) alternately disposed with a second plurality of heating-type filter plates (22). The membrane plates (21) have chamber-defining recesses on opposite sides thereof, with each recess (36) having a flexible membrane (39) associated therewith which can be pressurized from the rearward side so as to effect squeezing of the cake in the filtration chamber. Each heating plate (22) also has chamber-defining recesses (74) on opposite sides thereof, and the main center bottom wall (76) of each recess (74) has a metal heat transfer surface (77) associated therewith, the rear side of which is in intimate contact with a chamber or passage (79) which receives therein a high-temperature heat transfer fluid.



**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*